

WHAT IS CLAIMED IS:

1. A winder for winding a wire onto a coil support portion of a dynamo-electric core, the winder having a central longitudinal axis, the winder comprising:

a needle for dispensing the wire;

a first member;

a second member;

a translation assembly that produces translational movement of the first member and the needle parallel to the longitudinal axis;

a rotation assembly that produces relative rotational movement between the core and the needle; and

a stratification assembly movably coupled to the second member which causes a relative rotational movement between the second member and the first member, wherein the relative rotational movement between the second member and the first member produces radial movement of the needle and the relative rotational movement between the second member and the first member is independent from the relative rotational movement produced by the rotation assembly.

2. The winder of claim 1, wherein the second member comprises an end tube, the end tube being constrained to move translationally with the first member.

3. The winder of claim 2, wherein the first member comprises a winding shaft, the second member further comprises a drive tube, the end tube being constrained to rotate with the drive tube and wherein the relative rotational movement between the first member and

the second member is implemented on the end tube and the drive tube with respect to the winding shaft.

4. The winder of claim 1, wherein the first member comprises a winding shaft.

5. The winder of claim 1, wherein the first member houses a portion of the needle.

6. The winder of claim 1, wherein the translation assembly produces translational movement by a kinematic mechanism.

7. The winder of claim 1, wherein the winder further comprises a plurality of needles.

8. The winder of claim 7, wherein the stratification assembly produces radial movement of each of the plurality of needles substantially simultaneously.

9. The winder of claim 1, the stratification assembly comprising a motor for producing the radial movement.

10. The winder of claim 9, wherein the motor is adapted to provide a dampening effect to limit unwanted radial movement.

11. The winder of claim 1, the stratification assembly comprising a worm gear for producing the relative rotational movement between the second member and the first member.

12. The winder of claim 11, wherein the worm gear is adapted to provide a dampening effect to limit unwanted radial movement.

13. The winder of claim 1, wherein the second member is coaxial with the first member.

14. The winder of claim 1, wherein the first member and the second member share a common longitudinal axis.

15. The winder of claim 1, wherein the translational movement, the relative rotational movement between the core and the needle, and the relative rotational movement between the second member and the first member are programmable.

16. The winder of claim 1, wherein the second member comprises a spiral groove.

17. The winder of claim 16, wherein the relative rotational movement between the first member and the second member is implemented on the spiral groove with respect to the needle.

18. The winder of claim 1, wherein the stratification assembly comprises a guide member for supporting the needle.

19. The winder of claim 1, the needle comprising a first dimension parallel to the longitudinal axis and a second dimension perpendicular to the longitudinal axis, the second dimension for allowing the needle to pass between two poles of the dynamo-electric

core, wherein the first dimension is at least twice the thickness of the second dimension.

20. The winder of claim 1, further comprising a gear transmission, and wherein the rotation assembly is coupled by the gear transmission to at least one of the first member and the second member.

21. The winder of claim 20, wherein the gear transmission is hollow, and wherein at least one of the first member and the second member are circumferentially surrounded by the gear transmission.

22. The winder of claim 1, wherein the rotation assembly is adapted to rotate the core about the longitudinal axis.

23. The winder of claim 1, wherein the rotation assembly is adapted to rotate the second member and the needle about the longitudinal axis.

24. A method for winding a wire onto a coil support portion of a dynamo-electric core using a winder having a central longitudinal axis, a first member and a second member, the method comprising:

winding the wire along the coil support in a direction parallel to the longitudinal axis;

winding the wire across a face of the coil support in a first rotational direction about the longitudinal axis;

winding the wire along the coil support opposite the parallel direction;

winding the wire across a second face of the coil support in a second rotational direction about

the longitudinal axis, the second rotational direction being opposite the first rotational direction; and stratifying the wire along the coil support in a radial direction perpendicular to the longitudinal axis by generating relative rotational movement between the first member and the second member independently of winding the wire across the first and second face.